

Southwest Groundwater Treatment Plant Proposed UPDES Permit

March 22, 2010

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Utah Division of Water Quality



Overview

- What is the UPDES program and how does the permitting process work
- JWCD's UPDES permit application
- Upcoming information session and public comment period



Authority

- EPA is authorized under the CWA to implement the National Pollutant Discharge Elimination System Program.
- EPA has delegated authority to Utah to administer the NPDES Program.



Beneficial Use Designations (Classifications)

- Class 5A Gilbert Bay Segment of GSL
- Beneficial Uses – Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.



Water Quality Standards

- **Water Quality Standard** - the maximum amount of pollutant a waterbody can carry and still maintain its beneficial uses.



GSL Water Quality Standards

- Selenium Tissue Standard
- Narrative Standard
 - R317-2-7.2



In other words...

Under the Clean Water Act and the Utah Water Quality Act, the DWQ can allow pollution of waters of the State up to a certain point (the WQ standard) as long as the beneficial use is maintained.



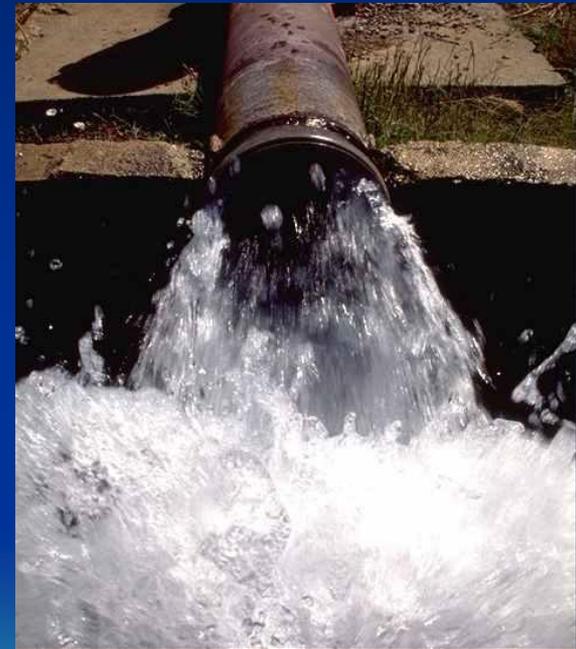
Utah Pollution Discharge Elimination System

The goal of the UPDES program is to protect surface water quality by regulating discharge of pollutants to waters of the State.



What is a UPDES Permit?

Protects the beneficial use of a receiving water by limiting concentrations and types of pollutants in a discharge.

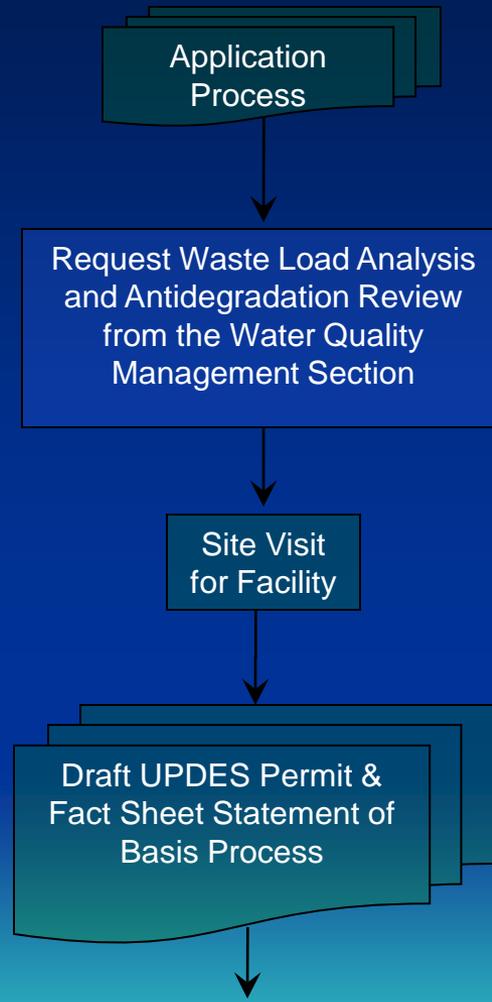


Major components of a UPDES Permit

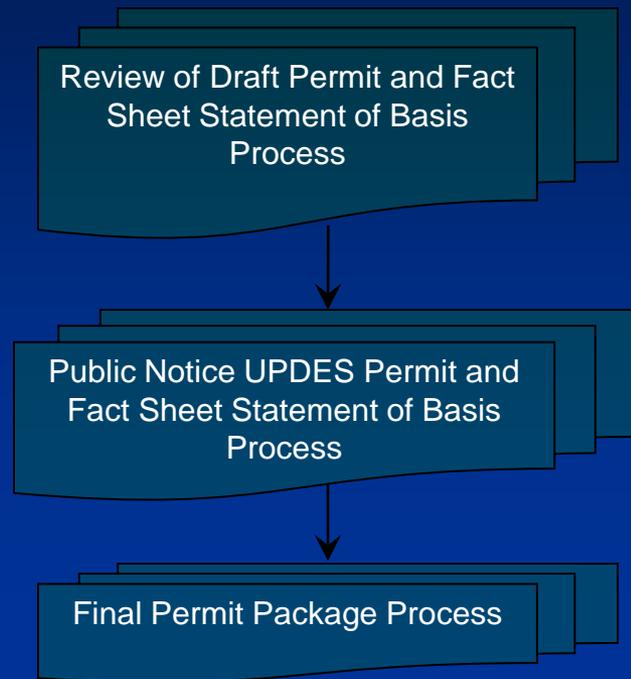
- Cover Page
- Effluent Limitations
- Monitoring and Reporting Requirements
- Special Conditions
- Standard Conditions



How does the UPDES Permitting Process work?



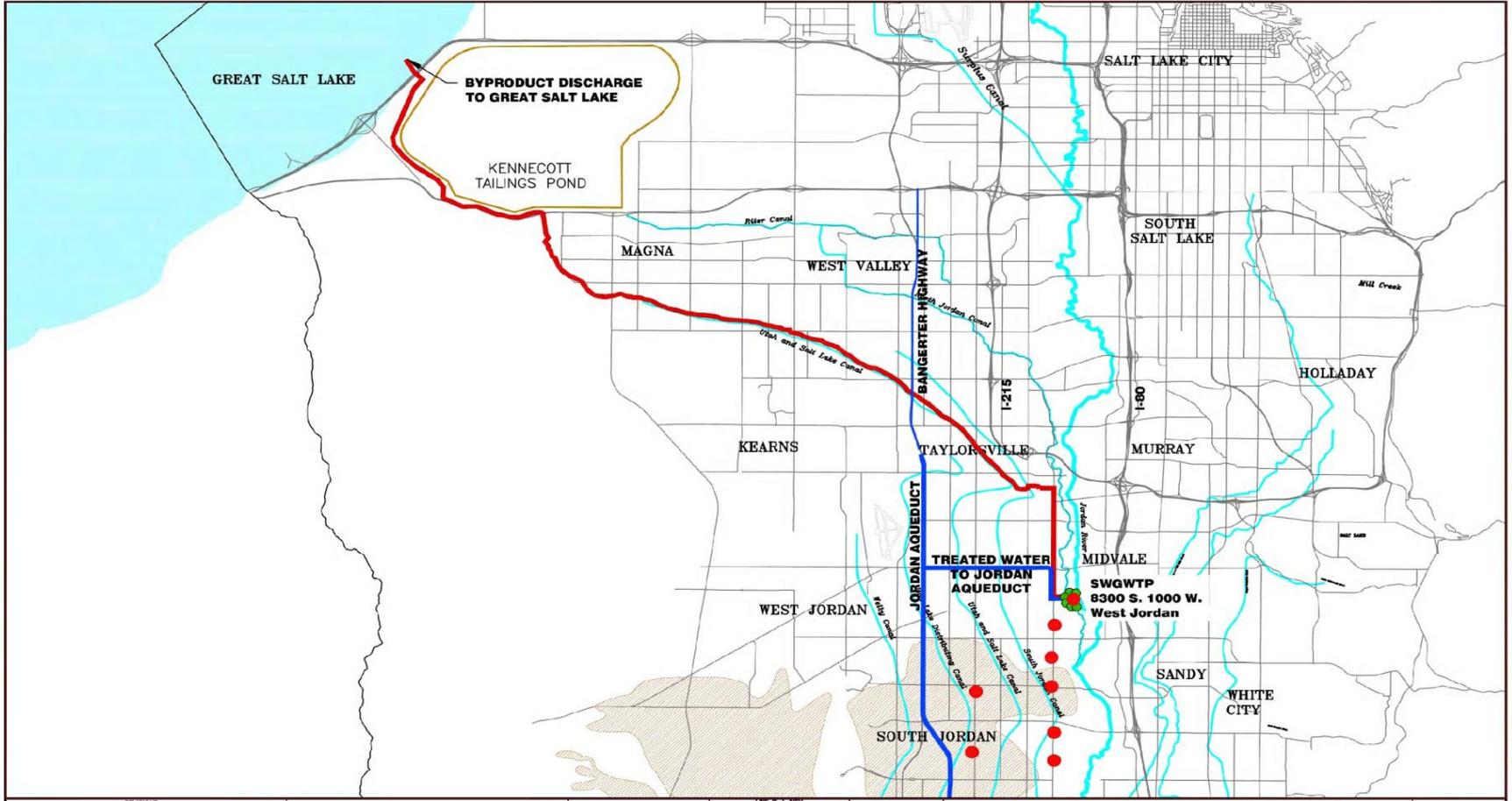
UPDES Permitting Process, continued



JVWCD's UPDES Application

- Application submitted April 2009
- Application revised February 2010
- Proposes to discharge 3 million gallons a day of reverse osmosis byproduct to Gilbert Bay of the GSL





REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



ONE INCH
 AT FULL SIZE
 (IF NOT 1" = SCALE ACCORDINGLY)

DESIGN: _____
 DRAWING: TODD M. PETERSON
 REVIEW: DAVID R. MCLAN
 APPROVAL: _____

SOUTHWEST GROUNDWATER TREATMENT PLANT

OVERALL PROJECT VIEW

SCALE: NTS
 DATE: 3/12/10
 PROJECT NUMBER: _____
 DRAWING NUMBER: 1
 SHEET NUMBER: 1 OF 1

Normal operating conditions (98% of the time)

Flow: 3 MGD

TDS: 7,944 mg/L

Mercury: 0.8 ug/L

Selenium: 44.7 ug/L

During times of maintenance (2% of the time)

Flow: 1 MGD

TDS: 10,746 mg/L

Mercury: 1.2 ug/L

Selenium: 55 ug/L

Expanded Effluent Data GILBERT BAY GREAT SALT LAKE OUTFALL Southwest Jordan Valley Groundwater Project Jordan Valley Water Conservancy District										
Parameter	Maximum Daily Concentration @ 1.0 MGD (dJ)					Average Daily Concentration @ 3.0 MGD (f)				
	Concentration	Units		Load (e)	Mass/Day	Concentration	Units		Mass	Units
Temperature	16	°C	(a)			16	°C	(a)		
pH	7	pH	(a)			7	pH	(a)		
Alkalinity	2,985	mg/L as CaCO3	(a)	11,291	kg	1,992	mg/L as CaCO3	(a)	22,608	kg
Total Hardness	6,471	mg/L as CaCO3	(a)	24,479	kg	4,246	mg/L as CaCO3	(a)	48,182	kg
Calcium Hardness	3,881	mg/L as CaCO3	(a)	14,678	kg	2,540	mg/L as CaCO3	(a)	28,818	kg
Total Dissolved Solids	10,746	mg/L	(a)	40,648	kg	7,944	mg/L	(a)	90,147	kg
Total Suspended Solids	18	mg/l	(a)	68	kg	<20	mg/l	(a)	203	kg
Total Organic Carbon	6.0	mg/L	(a)	23	kg	6.0	mg/L	(a)	68	kg
Aluminum	299	ug/l	(a)	1,129	g	249	ug/l	(a)	2,829	g
Antimony	1.5	ug/l	(a)	6	g	1.5	ug/l	(a)	17	g
Arsenic	36	ug/l	(b)	135	g	34	ug/l	(b)	384	g
Barium	418	ug/l	(a)	1,581	g	218	ug/l	(a)	2,471	g
Beryllium	2.99	ug/l	(b)	11	g	2.99	ug/l	(b)	34	g
Bicarbonate	3,636	mg/L	(a)	13,752	kg	2,427	mg/L	(a)	27,540	kg
Cadmium	1.49	ug/l	(b)	6	g	1.49	ug/l	(b)	17	g
Calcium	1,552	mg/L	(a)	5,871	kg	1,016	mg/L	(a)	11,527	kg
Carbon Dioxide	137	mg/L	(a)	519	kg	117	mg/L	(a)	1,331	kg
Carbonate	3.6	mg/L	(a)	14	kg	2.0	mg/L	(a)	22	kg
Chloride	1,373	mg/L	(a)	5,194	kg	1,325	mg/L	(a)	15,037	kg
Chromium, Hexavalent	36	ug/l	(b)	135	g	32	ug/l	(b)	361	g
Chromium, Trivalent	0.197	ug/l	(b)	1	g	0.142	ug/l	(c)	n/a	g
Copper	0.015	ug/l	(b)	0	g	0.015	ug/l	(b)	0	g
Cyanide	0.030	ug/l	(b)	0	g	ND	ug/l	(c)	NA	g
Fluoride	3.5	mg/L	(a)	13	kg	2.5	mg/L	(a)	28	kg
Hydrogen Sulfide	NA	mg/L	(a)	NA	g	NA	mg/L	(a)	NA	kg
Iron	1.0	mg/L	(a)	4	kg	0.7	mg/L	(a)	8	kg
Lead	3.6	ug/l	(b)	14	g	2.2	ug/l	(b)	25	g
Magnesium	597	mg/L	(a)	2,258	kg	393	mg/L	(a)	4,458	kg
Manganese	11.9	ug/l	(a)	45	g	11.9	ug/l	(a)	135	g
Mercury	1.2	ug/l	(b)	5	g	0.8	ug/l	(b)	9	g
Nickel	14.9	ug/l	(b)	58	g	14.9	ug/l	(b)	169	g
Phenolic Compounds (Total)	ND	ug/l	(b)	NA	g	ND	ug/l	(c)	NA	g
Potassium	78	mg/L	(a)	294	kg	54	mg/L	(a)	608	kg
Selenium	55.0	ug/l	(b)	208	g	44.7	ug/l	(b)	507	g
Silica (Total)	155	mg/L as SiO2	(a)	587	kg	147	mg/L as SiO2	(a)	1,671	kg
Silver	1.49	ug/l	(b)	6	g	1.49	ug/l	(b)	17	g
Sodium	1,254	mg/L	(a)	4,742	kg	889	mg/L	(a)	10,093	kg
Strontium	555	ug/l	(a)	2,100	g	499	ug/l	(a)	5,664	g
Sulfate	4,537	mg/L	(a)	17,162	kg	2,568	mg/L	(a)	29,139	kg
Thallium	1.49	ug/l	(b)	6	mg	1.49	ug/l	(b)	17	g
Zinc	30	ug/l	(b)	113	g	30	ug/l	(b)	339	g
Acid-Extractable Compounds	ND	mg/L	(b)	0	kg	ND	mg/L	(b)	NA	kg
Base-Natural Compounds	ND	mg/L	(b)	0	kg	ND	mg/L	(b)	NA	kg
Volatile Organic Compounds	ND	mg/L	(b)	0	kg	ND	mg/L	(b)	NA	kg

Notes:

- (a) Unless otherwise noted, the source of information is design documents for the SWGWP drawing G-10. Worst case source concentrations were assumed for the purposes of this permit.
- (b) Values are from water quality sampling during well pump testing. Samples measuring below the detection limit (i.e. Non-Detect) are reported at one-half of the detection limit.
- (c) NA=Not Available.
- (d) Maximum daily concentrations calculated from worst case by-product discharges with all shallow RO trains off. Maximum daily loading occurs on an average day when all trains of the plant are fully operating.
- (e) Daily mass calculations assume flow weighted average among four shallow well RO trains and two deep well RO trains.
- (f) Concentration and mass values assume a 99.5% membrane rejection and a 1.2 engineering factor.
- (g) Utah secondary drinking water standard.
- (i) Conversion factor for kg/day to lbs/day multiply by 2.2.

Significant Technical and Public Issues

- Mercury load to the Great Salt Lake
- Selenium effluent limit/mass balance in GSL
- Mudflat Wetlands eco-system protection
- Natural discharge to Jordan River—Farm. Bay—GSL in 100s of years vs. concentrated load to Gilbert Bay in 10's of years
- Other issues raised during public comment period



What's next....



Public Information Meeting

- March 22, 2010

Utah State Library, room 227

250 North 1950 West, Salt Lake City

5-6:00 pm - Open House Poster Session

6-6:45 pm - Presentations

6:45-7:30 pm - Poster Session, continued



Public Comment Period

- Begins **March 29th** for 60 days
- Draft FSSOB and Permit will be available on DWQ's website
- Public Hearing , May 5, 2010
Utah State Library, room 227
250 North 1950 West, Salt Lake City
5:30 pm



Resources

- Water Quality's Website:
www.waterquality.utah.gov
- Department of Environmental Quality's Website:
www.deq.utah.gov/issues/index.htm



Questions?

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